

Flowlok-R110

Elastomeric Urethane Waterproofing System Plaza Decks & Green Roofs

1. GENERAL

1.1 Scope: This specification covers the installation of a durable, decorative, abrasion resistant, elastomeric urethane waterproofing system designed for plywood or concrete surfaces. It is a monolithic system, designed to protect concrete and plywood surfaces by excluding moisture penetration during low temperature freeze-thaw cycling or high temperature, high humidity thermal cycling. This surfacing system has outstanding adhesion, impact and abrasion resistance, while exhibiting superior flexibility and superior weather resistance.

1.2 Work Included: Install waterproofing consisting of caulking and flashing for joint, Flowlok R-110 system, Base Membrane and Wear Coat. Apply In Accordance with these specifications and latest general instructions supplied by BESSERN Building Products.

1.3 Work Not Included: Work under this section shall not include finishing and corrective work in connection with the surfaces which are to receive the liquid-applied coating system. Nor does it include furnishing and installation of metal flashing, drains, vents, ducts, curbs or any other penetration through the deck.

1.4 Condition of Concrete Surfaces:

1.41 The concrete surfaces shall be of sound structural grade (3000 psi compressive strength recommended), of adequate design and thickness, and shall have a steel troweled followed by a fine broom finish, free of fins, ridges, voids or air entrained holes.

1.42 Concrete shall be cured by water curing method or pure sodium silicate. Curing compounds or curing agents of any type shall not be used unless they have prior approval from BESSERN Building Products.

1.43 Concrete shall be cured at least 28 days and shall be sloped for proper drainage.

1.44 Saw-cut control joints and/or expansion joints shall have been properly installed at strategic points throughout the field of the deck to control cracking caused by deflection and shrinkage.

1.45 Any required crickets or drains should be installed at the time the main deck is poured (i.e. monolithic).

1.46 Voids, rock pockets and excessively rough surfaces shall be repaired with epoxy grout or ground to match the unrepaired areas.

1.47 When metal decking is used as the concrete form, it shall be of the "ventilating type".

1.48 All concrete decks poured over precast "T's", planks or slabs, shall have control joints placed directly over all corresponding joints or openings in the precast units.

1.5 Condition of Plywood Surfaces:

1.51 The plywood shall be identified as conforming to U.S. Product Standard PS 1-66 and shall be 5/8 inch minimum thickness, tongue and groove, exterior grade B/C, or better. Install with B side up.

1.52 The tongue and groove plywood panels shall be tightly butted while leaving 1/16 inch separation between panels.

1.53 Plywood shall be fastened with non-corroding screws, 10d annular ring nails or twist shank nails. Space fasteners 6 inches on center along panel edges and 8 inches on center over intermediate supports.

1.54 All decks shall be designed to eliminate vertical deflection by the proper selection of plywood thickness and the proper spacing and thickness of supporting joists.

1.55 All plywood edges must be supported on blocking or primary framing with plywood panels continuous across two or more spans.

1.56 All adjacent metal flashing, scuppers, vents, etc. shall be galvanized or non-ferrous metal tightly screwed or nailed with ring shank nails, at intervals no greater than 4 inches on center.

1.57 The plywood deck shall be properly sloped to freely drain.

1.6 Job Conditions:

1.61 Before any waterproofing work is started the waterproofing applicator shall thoroughly examine all surfaces for any deficiencies. Should any deficiencies exist, the architect, owner, or general contractor shall be notified in writing and application shall not begin until corrections are made.

1.62 Do not proceed with application of materials when deck temperatures are less than 40°F (top coats only) or if precipitation is imminent.

1.63 Warn personnel against breathing of vapors and contact of material with skin or eyes. In confined areas, workmen shall wear the appropriate MSHA/NIOSH approved respiratory protective gear and protective clothing.

1.64 All gas flames and electrical apparatus shall be shut down prior to the start of and during coating application and curing.

1.65 Protect plants, vegetation, and animals which might be adversely affected by the coating operation.

1.66 This coating system should not be installed onto on-grade slabs, onto split slabs with buried membrane or onto slabs over unvented metal pans without prior approval from BESSERN.

2. QUALIFICATIONS

2.1 Waterproofing Applicator:

2.11 Shall be experienced in successfully applying the same or similar materials and shall be specifically approved as a Factory Authorized Applicator in writing by BESSERN.

2.12 Shall be financially responsible and be ready and able to submit performance bonds, if required.

2.13 Shall submit to the general contractor and the building owner the required certificates of insurance prior to starting the project.

2.2 Sample Submittals: Submit samples not less than 3" X 4" in size, showing the approximate applied thickness, texture and color. The submittal shall also include the manufacturer's application-specification sheet and a list of materials by name and quantity to be used on this project.

3. MATERIALS

The materials shall be delivered to the job site in the original sealed containers bearing the product name, color, manufacturer's lot number, directions for use and precautionary labels. All products listed are manufactured or supplied by BESSERN Building Products.

3.1 Caulking Compound: Shall be a one-component or two-component polyurethane compound approved by BESSERN Building Products.

3.2 Flashing Reinforcement: Shall be non-staining, uncured neoprene sheet at 45-60 mils thickness, woven polyester or woven fiberglass reinforcing fabric. BESSERN Building Products recommends Super Seal polyester tape.

3.3 Primer: Shall be Flowlok CS Primer Epoxy, low viscosity, two-component primer/sealer.

3.4 Base Membrane: Shall be Flowlok RM a high adhesion, amine catalyzed cured, polyurea membrane and shall meet or exceed the following typical properties:

Howlok- RM Base Coat

PROPERTY	TYPICAL VALUE	TEST METHOD
Composition	Urethane	
Weight Solids	95%	ASTM D-2369
VOC Content	> 55 gm/l	ASTM D-2240
Hardness, Shore A	60 ± 5	ASTM D-2240
Tensile Strength	1500 ± 100 psi	ASTM D-412
Ultimate Elongation	675 ± 100%	ASTM D-412
Tear Resistance Die C	250 ± 25 pli.	ASTM D-624
Water Absorption (wt)	0.05%	ASTM D-471

3.5 **Abrasion-Resistant Wear Coat:** Shall be Flowlok RM two component, high tensile strength, abrasion resistant and weather-resistant aliphatic polyurethane coating and shall meet or exceed the following typical performance properties:

Flowlok-RM Wear Coat

PROPERTY	TYPICAL VALUE	TEST METHOD
Composition	Urethane	
Weight Solids	95%	ASTM D-2369
VOC Content	> 55 gm/l	ASTM D-2240
Hardness, Shore A	60 ± 5	ASTM D-2240
Tensile Strength	1500 ± 100 psi	ASTM D-412
Ultimate Elongation	675 ± 100%	ASTM D-412
Tear Resistance Die C	250± 25 pli.	ASTM D-624
Water Absorption (wt)	0.05%	ASTM D-471

3.6 **Texture:** Silica sand should be added to give slip resistance and protection. Use 20 mesh sand to aid in slip resistance.

4. SUBSTRATE PREPARATION

4.1 Concrete Surfaces:

4.11 The concrete surface must be thoroughly clean, dry and free from any surface contaminates or cleaning residue. Acceptable methods of cleaning are sandblasting, shotblasting or mechanical grinding followed by the complete and thorough removal of any residue.

4.12 All cracks over 1/16 inch in width and all moving cracks under 1/16 inch in width shall be routed out to ¼ inch minimum in width and depth and filled flushed with polyurethane elastomeric sealant.

4.13 All cracks shall be stripe-coated with a 4 inch wide by 30 mils thick detail coat of Flowlok detail membrane.

4.14 Apply a ¼ inch cant of sealant around all pipes, drains and vertical junctions.

4.15 All expansion and contraction joints shall be cleaned, primed, fitted with a backing rod and caulked with elastomeric polyurethane sealants. Joints under ½ inch in width and all caulked cracks shall be stripe-coated with a 30 mil preparatory coat of Flowlok detail membrane.

4.16 Prior to commencing with the application, all surfaces to be coated shall be dry and free from any surface contaminates or cleaning residues.

4.2 Plywood Surfaces:

4.21 Sweep all plywood joints clean and free of sawdust. Fill all separations over 1/16 inch in width with polyurethane sealants. Apply joint reinforcement consisting of a brush coat of Flowlok-CS Detail Coat 30 mils thick, 5 inches wide, centered over all joints and transitions to metal flashings, drip-edges, etc. Imbed 3 to 4 inch wide reinforcing fabric into the wet membrane. Allow the detail membrane to cure overnight or until firm.

4.22 Damaged plywood panels shall be repaired or replaced prior to coating.

4.3 Flashing Reinforcement:

4.31 All required metal or neoprene flashing and fabric flashing reinforcement and all sealant cants shall be installed at this time.

4.32 All metal shall be delivered shop primed and then be field primed with Flowlok RM Epoxy Primer. (For metal surfaces which may exhibit adhesion difficulties, first prime with a zinc-rich or zinc chromate epoxy primer.) Super Seal Tape may be used to eliminate priming metal.

4.33 ENDURIT Flowlok-RM Base Membrane is used as an adhesive for the reinforcing fabric. The reinforcing fabric shall be laid into the wet base membrane with roller, brush or broad blade knife. The fabric shall be laid relaxed, smooth and wrinkle-free and thoroughly embedded in the base membrane. **Super Seal Tape may be used to eliminate this step.**

4.34 Flashings and polyester reinforcing fabric shall be coated (with base coats and top coats) each time the deck is coated.

4.4 **Priming:** Stir each side separately and then mix all of Part A with all of Part B. Use a mixing paddle on a slow speed drill motor. Mix for 2 to 3 minutes and let mixed primer sit 30 minutes before applying. Priming is not required on newly installed plywood conforming to section 1.5 and concrete. Unless Moisture concrete cannot escape from opposite side. Like poured concrete over corrugated steel.

5. APPLICATION OF MEMBRANE Where primer is needed

5.1 **Primer:** Apply Flowlok CS Primer at the approximate rate of 150 square feet per gallon. Allow primer to dry until it is tack-free. Within 16 hours of application of the primer, the base coat must be applied. If the base coat can't be applied within 16 hours or if the primer is contaminated by rain, then reprime. Primer is not required on new plywood or cured concrete.

Where concrete is poured unvented pans, primer must be installed as trapped moisture cannot escape from opposite side. Otherwise, Primer may be eliminated and replaced with a thicker application of RM, totaling 110 Mil.

5.2 **Flowlok-RM Base Membrane 1st Coat:** shall be trowel or squeegee and roller applied in one uniform coats at the rate of 1.0 gallon per 20 square feet or as needed in order to obtain an average film thickness of 73 + 2 dry mils. Allow the Flowlok RM Base Membrane to cure to a firm rubber before applying the next layer of membrane. Do not apply coating system over joints greater than ½ inch wide.

5.3 **Flowlok-RM Wear Coat:** shall be trowel or squeegee and roller applied in one uniform coats at the rate of 1.0 gallon per 40 square feet or as needed in order to obtain an average film thickness of 37 + 2 dry mils.

5.4 **Silica Sand:** shall be broadcast to rejection into the Flowlok-RM when it begins to gel. Use 20 (18/30) mesh silica sand. Usually this will require 20 pounds per 100 square feet. Remove all loose granules by sweeping or preferred by vacuum after Base Membrane has dried (2-3 hours).

5.5 **Thickness:** The overall dry film thickness of the completed waterproofing system, excluding primer and aggregate, shall average 110 dry mils.

6. COATED SURFACES

This Coating System shall comply with applicable Federal EPA VOC regulations, the Northeast Ozone Transportation Corridor VOC Regulations and applicable California Regional Air Quality Regulations.

7. GUARANTEE / WARRANTY

When this Elastomeric Coating System is installed by a Factory Approved Applicator, is inspected and approved in accordance with these specifications, and after receipt of the final payment, the Factory Approved Applicator shall issue the applicator's standard installation guarantee covering defects in material and workmanship.

Bessern warrants its products to be free of defects in workmanship and materials only at the time of shipment from our factory. If any BESSERN materials prove to contain manufacturing defects that substantially affect their performance BESSERN will, at its option, replace the material or refund the purchase price. The dollar value of BESSERN's liability and buyer's remedy under this limited unless otherwise noted. Please contact Bessern for extended warranty info.